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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/163,089	09/29/1998	IAN F. C. MCKENZIE	5036-1	9586

22442 7590 05/19/2003

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EXAMINER
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ZEMAN, ROBERT A

ART UNIT	PAPER NUMBER
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1645

DATE MAILED: 05/19/2003

33

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/163,089

Applicant(s)

MCKENZIE ET AL.

Examiner

Robert A. Zeman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3-17,19-21,24-26,38 and 70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-17,19-21,24-26,38 and 70 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 31.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The Information Disclosure Statement filed on 2-3-2003 (Paper No.31) is acknowledged. An initialed copy is attached hereto. Claims 1, 3-17, 19-21, 24-26, 38 and 70 are pending and currently under examination.

The Declaration of Dr. Pietersz under 35 U.S.C. 1.132 filed on 12-18-2002 is acknowledged and has been fully considered. It should be noted that said declaration refers to figures that were not attached to said declaration. However, in order to expedite prosecution, the figures attached to the previously submitted declaration filed on 11-27-2002 (Paper No. 26) were considered under the assumption that they were identical to the missing figures. If this is not the case, Applicant is required to submit a new declaration under 35 U.S.C. 1.132.

### ***Claim Rejections Maintained***

#### ***35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection of claims 1, 3-17, 19-21, 24-26, 38 and 70 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for immunoregulatory compositions comprising mannose receptor bearing cells, and a conjugate comprising MUC1 (antigen) and a carbohydrate polymer comprising mannose, wherein said carbohydrate polymer is a fully oxidized carbohydrate polymer comprising free aldehydes, does not reasonably provide

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enablement for immunoregulatory compositions comprising mannose bearing cells and a conjugate comprising any antigen and a carbohydrate polymer comprising mannose, wherein said carbohydrate polymer is a fully oxidized polymer comprising free aldehydes is maintained essentially for reasons of record.

**Applicant argues:**

1. Other antigens when conjugated to mannan induce an *in vivo* cellular immune response as shown in the Declaration by Dr. Pietersz (filed on 4-8-02) and the papers by Stambas et al.
2. The mannose receptor bearing cells are inherently involved in the cellular response.
3. A T-cell response follows the exposure of antigen presenting cells (dendritic cells or macrophages) to the antigen.
4. The *in vivo* T cell response to the administration of non-MUC1 antigens conjugated to mannan is a true reflection of how the same antigen conjugates would behave after treatment with mannose receptor cells *ex vivo* i.e. demonstration that the conjugate works *in vivo* is sufficient to address the expectation of how conjugates will behave as an *ex vivo* composition.
5. The presence of at least one mannose unit in the antigen-carbohydrate polymer is sufficient to provide immunogenicity. Hence the presence of a single mannose unit in the carbohydrate polymer will enable that particular conjugate to bind to APCs and result in the presentation of the antigen by APCs *in vivo*.
6. The demonstration of operability of a conjugate comprising an antigen and an oxidized carbohydrate polymer comprising mannose enables the claimed invention.
7. The aim of the present invention is to efficiently induce (boost) a cellular response to antigens so that there is effective vaccination.

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8. The newly submitted Declaration of Dr. Pietersz demonstrate the *in vivo* or *ex vivo* pulsing of dendritic cells with mannose antigen conjugates where the antigens are not MUC1 and the ability of pulsed APCs to induce cellular responses in animals.

Applicant's arguments have been fully considered and deemed non-persuasive. The instant invention is drawn to compositions comprising isolated mannose receptor-bearing cells **and** a conjugate comprising an antigen and a carbohydrate polymer comprising mannose, wherein said carbohydrate polymer is a fully oxidized carbohydrate polymer comprising free aldehydes. The mannose receptor-bearing cells are a required component of said composition. Applicant's arguments, as well as the papers by Stambas et al., demonstrate the effects of the antigen-polymer conjugate only. Since Applicant's ~~own~~ arguments do not address compositions that fall within the metes and bounds of the rejected claims, they are deemed non-persuasive. Moreover, the data presented in the Declaration by Dr. Pietersz is not representative of the full scope of the claims. Said data demonstrated the *ex vivo* pulsing of a single cell type (dendritic cells) utilizing a single antigen (CRIPTO) and the ability of splenocytes taken from mice immunized with said pulsed cells to produce  $\gamma$ IFN in an *in vitro* assay. Said data is not commensurate in scope with the claimed invention. The instant invention is drawn to compositions comprising isolated mannose receptor-bearing cells **and** a conjugate comprising an antigen and a carbohydrate polymer comprising mannose, wherein said carbohydrate polymer is a fully oxidized carbohydrate polymer comprising free aldehydes. The data provided by Dr. Pietersz is deemed non-persuasive since it fails <sup>to</sup> demonstrate any of the claimed antigens can be used in the claimed invention and induce an immune response *in vivo*. Moreover, it is unclear whether the CRIPTO

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antigen used was coupled to fully oxidized mannan. Therefore for the reasons stated above, the rejection is maintained.

***Conclusion***

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Zeman whose telephone number is (703) 608-7991. The examiner can normally be reached on Monday- Thursday, 7am -5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith can be reached on (703) 308-3909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

  
LYNETTE R. F. SMITH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1000

Robert A. Zeman  
May 15, 2003